

Serial No. 10/726,703

**REMARKS****STATUS OF THE CLAIMS**

In accordance with the foregoing, new claims 9-13 have been added.

Claims 5-13 are pending and under consideration. No new matter is being presented, and reconsideration of the pending claims is requested.

**REJECTIONS OF CLAIMS 1-4 UNDER 35 U.S.C. §101 FOR DOUBLE PATENTING AS CLAIMING THE SAME INVENTION AS THAT OF CLAIMS 1-4 OF PRIOR U.S. PATENT NO. 6,685,673**

The Examiner appears to overlook the Preliminary Amendment, within the Continuing Application Transmittal form PTO/SB/05, filed December 4, 2003, in which original claims 1-4 are cancelled.

In light of the Preliminary Amendment, it is respectfully submitted that the rejections of claims 1-4 are moot. Notwithstanding, the claims 1-4 are again requested and shown to be cancelled pursuant to this Amendment.

**REJECTIONS OF CLAIMS 5 AND 7 UNDER 35 U.S.C. §102(b) AS BEING ANTICIPATED BY LAYER ET AL. (U.S. PATENT NO. 5,529,463)**

The rejections of claims 5 and 7 are respectfully traversed and reconsideration is requested.

The Examiner states that Layer et al. (hereinafter "Layer") discloses a first structure having a vacuum pump barrel and a second structure having a liquid syringe, as recited in claim 5 of the present invention.

However, claim 5 additionally recites that the first and second structures are removably connected. This feature allows disposal of the liquid syringe while reusing the vacuum pump barrel multiple times, thereby reducing cost and pollution caused by waste. The Examiner makes no mention of this feature. Moreover, Layer does not disclose a liquid infusion device where the first and second structures are removably connected.

Therefore, it is respectfully submitted that claim 5 patentably distinguishes over Layer. Claim 7 depends from claim 5 and inherits its patentable features. Thus, claim 7 also patentably distinguishes over the reference.

Serial No. 10/726,703

**REJECTIONS OF CLAIMS 6 AND 8 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER LAYER**

The rejections of claims 6 and 8 are respectfully traversed and reconsideration is requested.

The Examiner concedes that Layer does not disclose the front end of the vacuum pump barrel extending further forward than the front end of the liquid syringe, as recited in claim 6. However, the Examiner asserts that this feature is obvious, pursuant to MPEP 2144.04, IV. A., which states, "...changes in sizes or proportions are prima facie obvious in the lack of a showing of criticality." The Examiner further asserts that "Applicant's specification does not assert any unusual feature resulting from having the front end of the barrel extend further than the liquid syringe."

It is submitted that connecting the first structure and the second structure in a state in which the front end of the vacuum pump barrel of the first structure extends further forward than the front end of the liquid syringe is not merely a change in size or proportion. Page 19, lines 16-21, of the Specification and FIG. 20(C) show that the purpose of the front end of the vacuum pump barrel extending further forward than the liquid syringe is to form a spare vacuum part F' in the front end of the vacuum pump barrel, to assure that the driving force does not decrease until liquid in the syringes is completely infused.

Therefore, it is respectfully submitted that claim 6 is not obvious over Layer, since the features discussed above are not simply changes in sizes or proportions. Furthermore, claims 6 and 8 depend from claim 5 and inherit its patentable features. Thus, it is submitted that claims 6 and 8 patentably distinguish over the prior art.

**NEW CLAIM 9**

New claim 9 depends from claim 5 and inherits its patentable features. Furthermore, new claim 9 recites the dual liquid syringes are disposable and replaceable and are positioned so that the openings of the syringes are substantially aligned, and the dual pistons have substantially the same length. (See page 19, line 28 to page 20, line 2 of the Specification and Figs. 20(A)-(C)).

In Layer, the pumps on both sides are positioned differently from each other, and are not aligned. Furthermore, the lengths of the plungers are different and the pumps on both sides are fixed and cannot be removed. (See Fig. 1).

Moreover, unlike Layer, there are no check-valve mechanisms (where blood suction is

Serial No. 10/726,703

done at one side and blood is sent out at the other side) in the present invention.

For the reasons set forth above, it is respectfully submitted that new claim 9 patentably distinguishes over the prior art.

#### NEW CLAIM 10

New claim 10 depends from claim 5 and inherits its patentable features. Furthermore, new claim 10 recites a vacuum is generated manually in the vacuum pump barrel, whereby atmospheric pressure drives the piston inside the vacuum pump barrel.

The device in Layer is driven in a way that the piston in the cylinder in the center is moved back and forth by an electric motor, thereby sending liquid into the cylinder.

For the reasons set forth above, it is respectfully submitted that new claim 10 patentably distinguishes over the prior art.

#### NEW CLAIMS 11 and 12

New claims 11 and 12 depend from claim 5 and inherit its patentable features. Furthermore, new claims 11 and 12 recite the dual pistons move substantially in the same direction as the piston of the vacuum pump, and the liquid syringes send the liquid outside of the device.

In Layer, the pumps are powered by a liquid cylinder and are operatively coupled together such that as one syringe pump is operating to draw blood from the patient's body, the other syringe pump is operating to pump blood, previously drawn from the patient's body, back into the patient. When the piston in the cylinder at the center moves back by liquid pressure, one of the syringes performs suction of blood while the other syringe sends blood out. When the piston in the cylinder at the center moves forward by liquid pressure, the syringes perform in the opposite manner.

For the reasons set forth above, it is respectfully submitted that new claims 11 and 12 patentably distinguish over the prior art.

#### NEW INDEPENDENT CLAIM 13

New independent claim 13 recites:

Serial No. 10/726,703

A continuous liquid infusion device for the transfusion of drug or chemical solution, such as anesthesia compounds and analgesic preparation, into patients' bodies, comprising:

a first structure having a vacuum pump barrel which has an open/close valve at its front end and an open rear end, a piston fitted into the vacuum pump barrel air-tightly, a stopper capable of locking the piston at the rear end of the vacuum pump barrel against atmospheric pressure, and a pusher movable in the same direction as that of the piston outside the vacuum pump barrel; and

a second structure having a liquid syringe, having the drug or chemical solution pre-stored therein, which has a liquid port at its front end and an open rear end, and a piston fitted into the liquid syringe liquid-tightly, wherein

said first structure and said second structure are removably connected, and

a vacuum is generated manually in the vacuum pump barrel, whereby atmospheric pressure drives the piston inside the vacuum pump barrel.

New claim 13 is related to the infusion of drug or chemical solution, such as anesthesia compounds and analgesic preparation, into patients' bodies. The drug or chemical solution is pre-stored in the liquid syringe, and a vacuum is generated manually in the vacuum pump barrel, whereby atmospheric pressure drives the piston inside the vacuum pump barrel.

Layer, on the other hand, is a device for suction and sending out of blood, in and out of a patient's body. (pump for an artificial lung and heart) (See column 4, lines 33-37). Therefore, it is respectfully submitted that new claim 13 patentably distinguishes over the prior art.

## CONCLUSION

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. Further, all pending claims patentably distinguish over the prior art. There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Serial No. 10/726,703

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date:

June 23, 2005

By:

David M. Pitcher  
David M. Pitcher

Registration No. 25,908

1201 New York Avenue, NW, Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being transmitted via facsimile to: Commissioner for Patents,  
P.O. Box 1450, Alexandria, VA 22313-1450  
on JUNE 23, 2005

STAAS & HALSEY

By: SVETLANA HOGUE

Date: 06/23/05